

REMARKS

Claims 1-13, and 16-17 currently are pending. Claims 1, 10-13 and 16-17 currently have been amended. Claims 14 and 15 have been canceled.

Claims 16-17 are rejected under 35 USC § 101 because the claimed invention is directed to non-statutory subjected matter. Since the claims do not recite an isolated or recombinant homolog and since the homologs can read on naturally occurring homologs, the examiner believes the claims read on products of nature.

In response, applicants amend claims 16 and 17 to recite "...isolated..."

Claims 1, 3-16 are rejected under 35 USC § 112, ¶2, as being indefinite.

The examiner stated claim 1 is vague in that applicants recite the orotidine-5'-phosphate-decarboxylase gene having the sequence SEQ ID NO: 1 which is isolated from **microorganisms**. In response, applicants amend claim so that it recites "An isolated orotidine-5'-phosphate decarboxylase gene having..." and delete "isolated from microorganisms."

The examiner believes claims 3, 5, 9 and 14 are vague in the recitation of a gene "or its homologs as claimed in claim 1" since claim 1 does not recite homologs. As amended claim 1 now recites homologs. The support for this amendment is found on page 3, lines 26-31 of the specification.

The examiner stated that claim 9 is vague in the recitation of the phrase "90% homology with the **sequences**." In response applicants amend claim 9 so that it recites "90% homology with the **sequence**."

The examiner believes claim 9 is vague in the recitation of the phrase "microorganism which is deficient in orotidine-5'-phosphate decarboxylase nucleic acid sequence having the sequence SEQ ID NO: 1." Claim 9 does not recite such a phrase. Applicants believe the examiner is referring to claim 10. Applicants amend claim 10 to overcome the rejection.

Claim 11 has been amended to recite "... is used as **the** vector."

Claim 12 has been amended to overcome the examiner's rejection.

Claim 13 now recites "is inserted as an additional gene."

Claims 14 and 15 have been canceled.

In view of the foregoing, applicants believe the present application is in condition for allowance. Favorable action is requested.

Please charge any shortage in fees due in connection with the filing of this paper, including Extension of Time fees to Deposit Account No. 11-0345. Please credit any excess fees to such deposit account.

Respectfully submitted,

KEIL & WEINKAUF

A handwritten signature in black ink, appearing to read "Daniel Kim", written in a cursive style.

Daniel S. Kim

Reg. No. 51877

1350 Connecticut Ave., N.W.
Washington, D.C. 20036
(202)659-0100

COMPLETE LISTING OF ALL CLAIMS IN THE APPLICATION

Cancel claims 14 and 15.

1. (currently amended) An isolated orotidine-5'-phosphate decarboxylase gene having the sequence SEQ ID NO: 1 and homologs of said sequence having at least 90% homology on the derived amino acid level ~~which is isolated from microorganisms.~~
2. (previously presented) An orotidine-5'-phosphate decarboxylase gene having the sequence SEQ ID NO: 1 which is isolated from *Ashbya gossypii*.
3. (previously presented) An isolated amino-acid sequence encoded by a gene or its homologs as claimed in claim 1.
4. (previously presented) An isolated amino-acid sequence as claimed in claim 3, which comprises an enzymatically active protein.
5. (previously presented) A gene construct comprising an orotidine-5'-phosphate decarboxylase gene having the sequence SEQ ID No: 1 or its homologs as claimed in claim 1, where the gene or its homologs is functionally linked to one or more regulatory signals.
6. (original) A gene construct as claimed in claim 5, whose gene expression is increased by the regulatory signals.
7. (previously presented) A vector comprising a gene construct as claimed in claim 5.
8. (previously presented) A microorganism comprising at least one gene construct as claimed in claim 5.
9. (previously presented) A process for producing uracil-auxotrophic microorganisms,

which comprises modifying an orotidine-5'-phosphate decarboxylase gene having the sequence SEQ ID NO: 1 or its homologs as claimed in claim 1 in such a way that the protein encoded by the gene is inactive, and introducing this modified gene into the microorganisms and integrating said gene by homologous recombination into the genome of the microorganisms, and subsequently selecting these microorganisms for resistance to 5-fluoroorotic acid thereby producing uracil-auxotrophic microorganisms.

10. (currently amended) A process for inserting DNA into microorganisms, which comprises inserting a vector which comprises an intact orotidine-5'-phosphate decarboxylase gene having the sequence SEQ ID NO: 1 or its homologs isolated from microorganisms which have at least 90% homology with the sequences as depicted in SEQ ID NO: 1 as claimed in claim 1 together with at least one other nucleic acid sequence, into a microorganism which is deficient in the enzymatic orotidine-5'-phosphate decarboxylase ~~nucleic acid sequence having the sequence SEQ ID NO: 1~~ and cultivating this microorganism on or in a culture medium without uracil.

11. (currently amended) A process as claimed in claim 10, wherein a linear DNA is used as the vector.

12. (currently amended) A process as claimed in claim 10, wherein an *Ashbya gossypii* strain is used as the microorganism deficient in the enzymatic activity of the orotidine-5'-phosphate decarboxylase ~~genes~~.

13. (currently amended) A process as claimed in claim 10, wherein at least one gene of riboflavin synthesis is inserted as an additional gene into the microorganism.

14. canceled.

15. canceled.

16. (currently amended) Isolated [[H]]homologs having 80% homology with the
orotidine-5'-phosphate decarboxylase gene claimed in claim 1.

17. (currently amended) Isolated [[H]]homologs of the orotidine-5'-phosphate
decarboxylase gene claimed in claim 2.